Ze-Yu Zhong

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Summary

PhD student in Econometrics at the Department of Econometrics and Business Statistics at Monash University. My research interests lie in factors models which are well-suited to handle large panels of time series, such as in economics or finance. Specifically, my expertise lies in developing econometric theory aimed at providing practitioners with a suite of tools related to testing for structural breaks, forecasting with structural breaks, and conducting structural analysis in data-rich environments. I look forward to pursuing further research in the areas of factor-augmented forecasting, identification using sign restrictions in factor models, and combining high-dimensional data with many different sources of identification.

Work Experience

Teaching Associate February 2020 - present

- ETC1000 Business Statistics
  - Summary Statistics, Pivot Tables, Hypothesis Testing, (Microsoft Excel)
- ETC2410/ETC3440 Introductory Econometrics
  - Ordinary Least Squares Regression, Hypothesis Testing, Introduction to Time Series (EViews)
- ETC3410/ETC5341/BEX3410 Applied Econometrics
  - Binary Outcome Models, Instrumental Variables Regression, Panel Data Models (R/RStudio)
  - Recipient of Purple Letter for recognition of excellence in teaching
- ETC2420/ETC5242 Statistical Thinking
  - Non-parametric/parametric inference, Data Visualisation, Bayesian Inference (R/RStudio)
- ETX2250 Data Visualisation and Analytics
  - Data wrangling, Data Visualisation, SQL queries, supervised and non-supervised machine learning
- ETC4420/5420 Microeconometrics
  - Multinomial Outcome Models, Truncated and Censored Regression, Sample Selection Models (STATA)

Research Assistant November 2019 - present

- Research assistant for Donald Poskitt and Xueyan Zhao
  - *Hausdorff Confidence Regions for Average Treatment Effect Intersection Bounds*
  - Constructed large Monte Carlo designs to investigate performance of QMLE, Half-median Unbiased Estimation, and Bootstrap based partial identification of Treatment Effect Bounds, with application to Australia Healthcare data
  - Converted R code to C++ and High-performance Computing for 100x speedup
- Research assistant for Bonsoo Koo
  - Implemented bootstrap based inference for non-parametric estimation of structural via an object-oriented programming approach with S3
- Research assistant for Benjamin Wong, to assist with querying large panels of price indices from US Bureau of Labor Statistics and US Bureau of Economic Analysis
  - Queried large panels of price indices from U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis, using API calls
- Research assistant for David Frazier
  - Investigated and implemented performance of DeepAR forecasting algorithms using Amazon AWS, including EC2 and Sagemaker for use in forecasting stock returns

Research Projects

Identification and Estimation of Structural Factor Models with External Instruments

- Presentations:
  - ANZESG 2024 (Melbourne)

Factor Augmented Forecasting Subject to Structural Breaks in the Factor Structure

- Presentations:
  - International Association for Applied Econometrics Conference (Xiamen and Thessaloniki, 2024), International Symposium on Forecasting (Dijon, 2024), ESAM 2024 (Melbourne)

Disentangling Structural Breaks in Factor Models for Macroeconomic Data

- First round Revise and Resubmit at the Journal of Business and Economic Statistics
- Presentations:
  - Continuing Education in Macroeconometrics Workshop (Melbourne, 2022), City University of Hong Kong Seminar (2022), BI Norwegian Business School Seminar (Oslo, 2022), EC^2 (Paris, 2022), University of Geneva Brown Bag Seminar (2022), ESAM (Sydney, 2023), International Panel Data Conference (Orleans, 2024)

Education

2021 - 2024 Doctor of Philosophy (Econometrics) at **Monash University** (under examination)
"Dynamic Factor Models: Structural Breaks, Forecasting, and Structural Analysis"

- Recipient of Post-Publication Award to support write up and publication (AUD 6,000)
- Recipient of Student Travel Grant for International Symposium on Forecasting (USD 3,500)
- Recipient of Monash University Staff Grant (AUD 12,000)

2019 - 2019 Bachelor of Commerce (Honours in Econometrics) at **Monash University** (79 WAM)
"Evaluation of Machine Learning in Empirical Finance"

2016 - 2018 Bachelor of Actuarial Science at **Monash University** (80 WAM)

Referee Service

Studies in Nonlinear Dynamics & Econometrics

References

Bonsoo Koo	Associate Professor, Monash University	bonsoo.koo@monash.edu
Xu Han	Associate Professor, City University of Hong Kong	xuhan25@cityu.edu.hk
Donald Poskitt	Emeritus Professor, Monash University	donald.poskitt@monash.edu